

IN THE SPECIFICATION:

Page 11, delete the forth paragraph:

Page 18, delete the last full paragraph and insert the following new paragraph:

A1 The transducer drive circuitry of power transformer 86 shown in FIG. 3B may be represented by an equivalent electrical circuit having components C_o , L_s , C_s , and R_s which form a transducer equivalent circuit T_{equiv} , where C_o is a shunt capacitance and represents the electrical capacitance of the piezoelectric elements of the piezoelectric transducer 36 shown in FIG. 2.

Page 19, delete the entire page 19 and insert the following new page 19:

A2 L_s , C_s and R_s form an electrical equivalent of the overall mechanical system and collectively represent the mechanical branch. L_s is the effective mass of the system, C_s is the effective compliance and R_s represents mechanical losses associated with friction, internal material dissipation and/or the power delivered to the tissue.

An Inductor L_t is also provided and is matched to the shunt capacitance C_o at the resonance of the ultrasonic system, such as approximately 55.5 kHz. Hence, L_t and C_o electrically cancel each other at the resonant frequency. As a result, all of the drive current will flow through the mechanical branch. This helps to ensure that the ultrasonic excursion of the transducer is primarily proportional to the drive current.

Two resistors $R_p/2$ sum in series to a resistance of R_p . This resistance helps to

establish an upper limit of the overall impedance of the output circuit, and also establishes an upper limit for the drive voltage. In preferred embodiments, R_p is a relatively large resistance. At resonance, the parallel combination of R_p and R_s is effectively R_s , because R_s is much smaller than R_p , even when coagulating and cutting tissue.

A series combination of capacitors C_{v1} and C_{v2} is used to form a voltage divider.

Q2 Together these capacitors reduce the high voltage that typically drives the transducer to a level which is appropriate for signal processing by integrated circuits (not shown). A transformer V_t couples the reduced voltage to the feedback circuitry (voltage sense 92 of FIG. 3B) and also provides isolation between the drive circuitry and the other circuitry of the generator.

A small voltage drop is provided across a series combination of resistors R_3 and R_4 .

In the preferred embodiment, the series combination is a relatively low

Page 20, delete the second full paragraph and insert the following new paragraph:

A pair of resistors R_1 , R_2 is used to establish a minimum impedance level to the

Q3 control circuitry for use in the control algorithms. The resistance is divided between two output arms V_{out1} , V_{out2} of the power transformer to help mitigate electromagnetic radiation and leakage current.
